

# Chairs and tables for educational institutions: what does the standard prescribe?

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In the last period it has been discussed a lot about tables, chairs and chairs with castors for educational institutions. In the present article we would like to reassume the most important features of the standard EN 1729 part 1 and EN 1729 part 2, issued in 2015.

**The part 2 of the standard** prescribes the safety requirements and test method, including the stability test.

**The part 1 of the standard** refers to the functional dimensions of chairs and tables. It has introduced a new method for the dimensions evaluation of chairs, with the introduction of a specific measurement device, the SCMD – School Chair Measuring Device.

Let's look through the standard: how is a desk or a school chair evaluated and how this standard varies in comparison to other standards for the furniture?

The standard prescribes requirements. But that's not all: the standard includes eight different size marks both for chairs and for tables. These sizes have different dimensional requirements, to allow at the products to grow up with the children, from kindergarten to high school.

The size marks are defined by the popliteal (a muscle of the leg) height and by the stature range, **not by the user's age**, starting from a stature range of 800 – 950 mm for size mark 0 (zero) to a stature range of 1740 – 2070 mm for the maximum size, size mark 7.

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In the case of chairs, the dimensional requirements included in the standard refer to the following parameters:

- seat height;
- effective depth of the seat;
- seat width;
- distance between the vertical projection of the point that protrudes in the backrest, to the back of the seat pad;
- backrest height;
- width of backrest;
- horizontal radius of backrest;
- inclination of the seat;
- angle between seat and backrest;
- height of armrests;
- width between armrests;
- distance from backrest to front edge of armrests;
- width of the armrest;
- length of armrest;
- raised edges and surfaces.

In the case of tables, the dimensional requirements included in the standard refer to the following parameters:

- height of top;
- depth of top;
- width of top, per person.

In addition to these parameters, a minimum legroom shall be ensured according to the different size marks.

In order to decide the various dimensional requirements, a deep analysis of the anthropometric data has been initially carried out.

Some examples:

In the case of the **seat height** is important that the users shall be able to rest their feet on the floor. This situation avoid that the underside of their thighs and the back of their knees is compressed, leading to the consequence of affecting the bloody circulation to the lower legs and feet.

The **depth of the seat** is significant too: if a chair has a seat too depth, the front of the seat presses against the back of the knees, causing restricted blood flow to the lower legs. Furthermore, the users slouch in order to reach the backrest, assuming an incorrect position of their back.

Referring to **a table** the width and the depth of the top are very important: the users shall have enough space to put all the necessary paperwork and equipment and also both their arms.

If **legroom** is too small, the user will feel restricted, the risk of discomfort and fatigue will increase causing lower level of concentration. Furthermore this situation makes incorrect positions and difficulty in sitting and getting up.

These are just a few examples of evaluation carried out in order to define the requirements. The document standard reports them all in its final annex.

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Since the requirements depend on the size marks, it is evident that these evaluations must be periodically repeated along the growth stages of each individual users, in order to always give him/her the right seat and table to guarantee their correct posture.

Naturally, new revisions will also be provided for this standard, in order to update the anthropometric data and correctly refer to new products/new technical solutions on the market. For example, swivel chairs with wheels, already in use in particular in schools in some Northern European countries, are currently being studying in order to revise the standard with new specific safety requirements.

CATAS is actively involved in the standardization working groups for these products. Our attention and commitment stay high on this topics and we will surely update on news and upcoming revisions.

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